

CLAIMS:

1. An electric device comprising:
 - a substrate (2,42,50) having a main surface of a first material, and
 - a nanostructure (1,44,51) of a second material,wherein the first and second materials having a mutual lattice mismatch, and wherein the
5 nanostructure being supported by and being in epitaxial relationship with the substrate.
2. A device according to claim 1, wherein the nanostructure (1,44,51) is in electrical contact with the substrate (2,42,50).
- 10 3. A device according to claim 2, wherein the resistance between the nanostructure (1,44,51) and the substrate (2,42,50) is below 10^{-5} Ohm cm².
4. A device according to claim 1, wherein the nanostructure (1,44,51) is a nanotube and/or the nanostructure is a nanowire.
- 15 5. A device according to claim 1, wherein a lattice mismatch between the substrate (2,42,50) and the nanostructure(s) (1,44,51) is smaller than 10%.
6. A device according to claim 1, wherein the nanostructure (1,44,51) is a
20 substantially single-crystal nanostructure.
7. A device according to claim 1, wherein a plurality of nanostructures are arranged in an array.
- 25 8. A device according to claim 1, wherein the electric device is a gate-around transistor.

9. A device according to claim 8, further comprising a first dielectric (45,53) and wherein the first dielectric is in contact with at least a section of the nanostructure(s) (1,44,51).

5 10. A device according to claim 9, further comprising a first conductive material (46,55,65) and wherein the first conductive material is electrically insulated from the substrate by the first dielectric (45,53).

10 11. A device according to claim 10, further comprising a second dielectric (54) and wherein the second dielectric is electrically insulating the first conductive material (46,55,65) from the nanostructure (1,44,51).

12. A device according to claim 11 wherein the first dielectric is thicker than the second dielectric.

15 13. A device according to claim 1, further comprising a second conductive material (48,59) and wherein the second conductive material is in contact with at least one nanostructure (1,44,51).

20 14. A device according to claim 13, further comprising at least a third dielectric (47,56,57), the at least third dielectric insulating the second conductive material (48,59) from the first conductive material (46,55,65).

25 15. A method of growing a second material in epitaxial relationship with a first material, the second material and the first material having a mutual lattice mismatch, the method comprising the steps of:

- providing a substrate (2,42,50) of the first material,
- forming a nanostructure (1,44,51) of the second material by a growth method, wherein the first material comprising at least one element from a first group in the periodic table and the second material comprising at least one element from a second group, the second group being different from the first group, and wherein the nanostructure being supported by and in epitaxial relationship with the substrate.

16. A method according to claim 15, wherein the nanostructure is grown according to the vapour-liquid-solid (VLS) growth method.